WHAT IS CLAIMED IS:

1. An isolated peptide that selectively binds aminopeptidase A.

2. The isolated peptide of claim 1, wherein the isolated peptide inhibits aminopeptidase A activity.

3. The isolated peptide of claim 2, wherein the isolated peptide inhibits angiogenesis.

4. The isolated peptide of claim 1, wherein the isolated peptide comprises SEQ ID NO:1, SEQ ID NO:2, or SEQ ID NO:3.

5. The isolated peptide of claim 1, wherein the isolated peptide is therapeutic for the treatment of cancer.

6. The isolated peptide of claim 1, wherein the isolated peptide is therapeutic for diabetic retinopathy.

7. The isolated peptide of claim 1, wherein the isolated peptide is operatively coupled to a therapeutic agent.

8. The isolated peptide of claim 1, wherein the isolated peptide is covalently coupled to a therapeutic agent.

9. The isolated peptide of claim 8, wherein said therapeutic agent is a drug, a chemotherapeutic agent, a radioisotope, a pro-apoptosis agent, an anti-angiogenic agent, a hormone, a cytokine, a cytotoxic agent, a cytocidal agent, a cytostatic agent, a peptide, a protein, an antibiotic, an antibody, a Fab fragment of an antibody, a hormone antagonist, a nucleic acid or an antigen.

10. The isolated peptide of claim 9, wherein the anti-angiogenic agent is selected from the group consisting of thrombospondin, angiostatin5, pigment epithelium-derived factor, angiotensin, laminin peptides, fibronectin peptides, plasminogen activator inhibitors, tissue metalloproteinase inhibitors, interferons, interleukin 12, platelet factor 4, IP-10, Gro-ß, thrombospondin, 2-methoxyoestradiol, proliferin-related protein, carboxiamidotriazole, CM101, Marimastat, pentosan polysulphate, angiopoietin 2 (Regeneron), interferon-alpha, herbimycin A, PNU145156E, 16K prolactin fragment, Linomide, thalidomide, pentoxifylline, genistein, TNP-470, endostatin,

paclitaxel, Docetaxel, polyamines, a proteasome inhibitor, a kinase inhibitor, a signaling peptide, accutin, cidofovir, vincristine, bleomycin, AGM-1470, platelet factor 4 and minocycline.

11. The isolated peptide of claim 9, wherein said pro-apoptosis agent is selected from the group consisting of etoposide, ceramide sphingomyelin, Bax, Bid, Bik, Bad, caspase-3, caspase-8, caspase-9, fas, fas ligand, fadd, fap-1, tradd, faf, rip, reaper, apoptin, interleukin-2 converting enzyme or annexin V.

12. The isolated peptide of claim 9, wherein said cytokine is selected from the group consisting of interleukin 1 (IL-1), IL-2, IL-5, IL-10, IL-11, IL-12, IL-18, interferon-γ (IF-γ), IF-α, IF-ß, tumor necrosis factor-α (TNF-α), or GM-CSF (granulocyte macrophage colony stimulating factor).

13. The isolated peptide of claim 1, wherein said peptide is attached to a molecular complex.

14. The isolated peptide of claim 13, wherein said complex is a virus, a bacteriophage, a bacterium, a liposome, a microparticle, a magnetic bead, a yeast cell, a mammalian cell or a cell.

15. The isolated peptide of claim 14, wherein said complex is a virus or a bacteriophage.

16. The isolated peptide of claim 15, wherein said virus is chosen from the group consisting of adenovirus, retrovirus and adeno-associated virus.

17. The isolated peptide of claim 15, wherein said virus is further defined as containing a gene therapy vector.

18. The isolated peptide of claim 14, wherein said peptide is attached to a eukaryotic expression vector.

19. The isolated peptide of claim 18, wherein said vector is a gene therapy vector.

20. A pharmaceutical composition comprising the peptide of claim 1 or an antibody that selectively binds aminopeptidase A.

21. The pharmaceutical composition of claim 20, further comprising the peptide of claim 4.

22. A nucleic acid that encodes a protein or peptide comprising SEQ ID NO:1, SEQ ID NO:2, or SEQ ID NO:3.

23. The nucleic acid of claim 22, wherein said nucleic acid is operably linked to a heterologous promoter.

24. A method for the treatment of cancer comprising administering an anti-aminopeptidase A antibody to a subject.

25. The method of claim 24, wherein said subject is a mammal.

26. The method of claim 25, wherein said mammal is a human.

27. The method of claim 24, wherein said antibody is a monoclonal antibody.

28. The method of claim 24, wherein said antibody is administered in a pharmaceutically acceptable carrier.

29. The method of claim 24, further comprising administering a second therapeutic agent to said human.

30. A method of treating cancer comprising administering a peptide that selectively binds aminopeptidase A.

31. The method of claim 30, wherein said peptide inhibits aminopeptidase A.

32. The method of claim 31, wherein said peptide is selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, or SEQ ID NO:3.

33. The method of claim 30, wherein said subject is a mammal.

34. The method of claim 33, wherein said mammal is a human.

35. The method of claim 34, wherein said peptide is administered in a pharmaceutically acceptable carrier.

36. The method of claim 30, further comprising administering a second therapeutic agent to said human.

37. The method of claim 30, wherein said peptide is coupled to a therapeutic agent.

38. The method of claim 37, wherein the peptide is covalently coupled to a therapeutic agent.

39. The method of claim 38, wherein said therapeutic agent is a drug, a chemotherapeutic agent, a radioisotope, a pro-apoptosis agent, an anti-angiogenic agent, a hormone, a cytokine, a cytotoxic agent, a cytocidal agent, a cytostatic agent, a peptide, a protein, an antibiotic, an antibody, a Fab fragment of an antibody, a hormone antagonist, a nucleic acid or an antigen.

40. The method of claim 39, wherein the anti-angiogenic agent is selected from the group consisting of thrombospondin, angiostatin5, pigment epithelium-derived factor, angiotensin, laminin peptides, fibronectin peptides, plasminogen activator inhibitors, tissue metalloproteinase inhibitors, interferons, interleukin 12, platelet factor 4, IP-10, Gro-ß, thrombospondin, 2-methoxyoestradiol, proliferin-related protein, carboxiamidotriazole, CM101, Marimastat, pentosan polysulphate, angiopoietin 2 (Regeneron), interferon-alpha, herbimycin A, PNU145156E, 16K prolactin fragment, Linomide, thalidomide, pentoxifylline, genistein, TNP-470, endostatin, paclitaxel, Docetaxel, polyamines, a proteasome inhibitor, a kinase inhibitor, a signaling peptide, accutin, cidofovir, vincristine, bleomycin, AGM-1470, platelet factor 4 and minocycline.

41. The method of claim 39, wherein said pro-apoptosis agent is selected from the group consisting of etoposide, ceramide sphingomyelin, Bax, Bid, Bik, Bad, caspase-3, caspase-8, caspase-9, fas, fas ligand, fadd, fap-1, tradd, faf, rip, reaper, apoptin, interleukin-2 converting enzyme or annexin V.

42. The method of claim 39, wherein said cytokine is selected from the group consisting of interleukin 1 (IL-1), IL-2, IL-5, IL-10, IL-11, IL-12, IL-18, interferon-γ (IF-γ), IF-α, IF-ß, tumor necrosis factor-α (TNF-α), or GM-CSF (granulocyte macrophage colony stimulating factor).

43. A method for imaging cells expressing aminopeptidase A comprising exposing a sample to an isolated peptide that selectively binds aminopeptidase A, wherein said peptide is coupled to a second agent.

44. The method of claim 43, wherein said agent is a radioisotope or an imaging agent.

45. The method of claim 43, wherein said cells comprise vasculature.

46. The method of claim 45, wherein said vasculature is tumor vasculature

47. The method of claim 43, wherein said isolated peptide comprises SEQ ID NO:1, SEQ ID NO:2, or SEQ ID NO:3.

48. The peptide of claim 1, identified by a process comprising:

a) contacting a cell or tissue expressing APA with a plurality of phage, wherein each phage comprises heterologous peptide sequences incorporated into a fiber protein,

b) removing the phage that do not bind to the cell or tissue expressing APA, and

c) isolating the phage that bind the cell or tissue expressing APA.

49. The peptide of claim 48, wherein the method is repeated at least twice.

50. The peptide of claim 48, further comprising isolating and sequening the isolated phage nucleic acid.

51. The peptide of claim 48, wherein APA expression is endogenous.

52. The peptide of claim 48, wherein APA expression is exogenous.

53. An antibody that binds a peptide in accordance with claim 1.

54. A method of inhibiting viral attachment to a cell comprising contacting the cell with an effective amount of a) a peptide in accordance with claim 1, 2) an antibody that binds APA, or c) an antibody in accordance with claim 53.

55. The method of claim 54, wherein the cell is in a human and the peptide or antibody is administered to said human.

56. A method of promoting angiogenesis in a cell or tissue comprising administering to a tissue or cell an agent effective to upregulate APA expression in said cell.

57. The method of claim 56, wherein the agent is an APA gene under the control of a heterologous promoter.

58. The method of claim 56, whereing the agent is one identified by screening a candidate substance for the ability of said substance to upregulate expression of APA.

59. The method of claim 56, wherein the cell or tissue is in a patient.

60. A method of inhibiting angiogenesis in a cell or tissue comprising administering to said cell or tissue an effective amount of an APA inhibitor.

61. The method of claim 1, wherein the APA inhibitor comprises an antisense APA or an APA directed siRNA.

62. The method of claim 60, wherein the inhibitor is a peptide in accordance with claim 1 or an anti-APA antibody.

63. The method of claim 60, wherein the cell or tissue is in a patient.